AMENDMENTS TO THE CLAIMS

1-20. (Canceled)

21. (Currently amended) Treatment apparatus, comprising:

an electrode device, configured to be coupled to a vagus nerve of a subject; and

a control unit, configured to:

drive the electrode device to apply an electrical current to the vagus nerve, and

~~configure~~ modulate the current to cause fluctuation in atrial contractility ~~increase atrial motion of the subject, to a level~~ sufficiently to reduce a risk of an occurrence of a thromboembolic event.

22. (Previously Presented) Apparatus according to claim 21, wherein the control unit is configured to configure the current to modify blood flow within an atrium of the subject.

23. (Previously presented) Apparatus according to claim 21, wherein the electrode device is configured to be coupled to the vagus nerve of the subject, the subject suffering from atrial fibrillation (AF) and from increased risk of thromboembolic events.

24. (Previously Presented) Apparatus according to claim 21, wherein the control unit is configured to configure the current to increase blood flow out of a left atrial auricle of the subject.

25. (Previously presented) Apparatus according to claim 21, further comprising a sensor configured to detect an occurrence of atrial fibrillation (AF) and generate a sensor signal responsive thereto, wherein the control unit is configured to receive the sensor signal, and to drive the electrode device to apply the current responsively to the sensor signal.

26-29. (Canceled)

30. (Previously presented) Apparatus according to claim 21,

wherein the control unit is configured to configure the current to include a stimulating current, which is capable of inducing action potentials in a first set and a second set of nerve fibers of the vagus nerve, and an inhibiting current, which is capable of inhibiting the induced action potentials traveling in the second set of nerve fibers, the nerve fibers in the second set having generally larger diameters than the nerve fibers in the first set, and

wherein the control unit is configured to drive the electrode device to apply the stimulating current and the inhibiting current to the vagus nerve.

31. (Previously presented) Apparatus according to claim 21,

wherein the control unit is configured to configure the current to include a stimulating current, which is capable of inducing action potentials in the vagus nerve, and an inhibiting current, which is capable of inhibiting device-induced action potentials traveling in the vagus nerve in an afferent direction toward a brain of the subject, and

wherein the control unit is configured to drive the electrode device to apply the stimulating current and the inhibiting current to the vagus nerve.

32. (Currently amended) Apparatus according to claim 21, wherein the control unit is configured to modulate the current to cause the fluctuation in the atrial contractility by cycling ~~cycle~~ between first and second stimulation periods, and to:

during the first stimulation periods, configure the current to cause a reduction in a force of contraction of atrial cells of the subject, and

during the second stimulation periods, configure the current to cause an increase in the reduced force of contraction of the atrial cells.

33. (Previously presented) Apparatus according to claim 32, wherein the control unit is configured to set each of the first stimulation periods to have a duration of between about 100 milliseconds and about 1000 milliseconds.

34. (Previously presented) Apparatus according to claim 32, wherein the control unit is configured to set each of the second stimulation periods to have a duration of between about 200 milliseconds and about 15 seconds.

35. (Previously presented) Apparatus according to claim 32, wherein the control unit is configured to configure the current to have a first frequency during the first stimulation periods, and a second frequency during the second stimulation periods, the first frequency greater than the second frequency.

36. (Previously presented) Apparatus according to claim 32, wherein the control unit is configured to configure the current to have a first amplitude during the first stimulation periods, and a second amplitude during the second stimulation periods, the first amplitude greater than the second amplitude.

37. (Previously presented) Apparatus according to claim 32, wherein the control unit is configured to:

drive the electrode device to apply the current during the first stimulation periods, and

withhold the electrode device from applying the current during the second stimulation periods.

38. (Previously presented) Apparatus according to claim 32, wherein the control unit is configured to:

during the first stimulation periods, configure the current so as to induce action potentials in the vagus nerve, and

during the second stimulation periods, configure the current so as to block action potentials in the vagus nerve.

39. (Previously Presented) Apparatus according to claim 32, wherein the control unit is configured to configure the current so as to induce action potentials in the vagus nerve during the first and the second stimulation periods.

40. (Previously presented) Apparatus according to claim 32, wherein the control unit is configured to:

drive the electrode device to apply the current in respective bursts in each of a plurality of cardiac cycles of the subject, and

configure each pulse of each of the bursts to have a pulse width of at least a first pulse width during the first stimulation periods, and to have a pulse width of less than a second pulse width during the second stimulation periods, the first pulse width being greater than or equal to the second pulse width.

41. (Previously presented) Apparatus according to claim 32, wherein the control unit is configured to:

drive the electrode device to apply the current in respective bursts in each of a plurality of cardiac cycles of the subject, and

configure each of the bursts to have a number of pulses of at least a first number of pulses during the first stimulation periods, and to have a number of pulses of less than a second number of pulses during the second stimulation periods, the first number of pulses being greater than or equal to the second number of pulses.

42. (Previously Presented) Apparatus according to claim 32, further comprising a sensor, configured to sense at least one physiological variable of the subject, and to generate a sensor signal responsive thereto, and wherein the control unit is configured to receive the sensor signal and to synchronize therewith a commencement of at least one of the first and second stimulation periods.

43. (Previously presented) Apparatus according to claim 42, wherein the sensed physiological variable includes a QRS-complex of the subject, and wherein the control unit is configured to initiate each of the first stimulation periods within about 50 milliseconds after an occurrence of the QRS-complex.

44. (Previously presented) Apparatus according to claim 42, wherein the sensed physiological variable includes an expiration by the subject, and wherein the control unit is configured to initiate each of the first stimulation periods within about 500 milliseconds after a beginning of the expiration.

45. (Previously presented) Apparatus according to claim 42, wherein the sensed physiological variable includes diastole of the subject, and wherein the control unit is configured to initiate each of the second stimulation periods substantially simultaneously with a portion of the diastole.

46-163. (Canceled)

164. (Currently amended) A treatment method, comprising:

applying an electrical current to a vagus nerve of a subject; and

~~configuring~~ modulating the current to cause fluctuation in atrial contractility ~~increase atrial motion of the subject, to a~~

~~level~~ sufficiently to reduce a risk of an occurrence of a thromboembolic event.

165. (Original) A method according to claim 164, wherein configuring the current comprises configuring the current to modify blood flow within an atrium of the subject.

166. (Previously presented) A method according to claim 164, wherein applying the current comprises identifying that the subject is suffering from atrial fibrillation (AF) and from increased risk of thromboembolic events, and applying the current responsively to the identifying.

167. (Original) A method according to claim 164, wherein configuring the current comprises configuring the current to increase blood flow out of a left atrial auricle of the subject.

168. (Previously presented) A method according to claim 164, wherein applying the current comprises detecting an occurrence of atrial fibrillation (AF), and applying the current responsively to the detecting.

169-172. (Canceled)

173. (Previously presented) A method according to claim 164,

wherein applying the current comprises applying a stimulating current and an inhibiting current, and

wherein configuring the current comprises configuring the stimulating current to induce action potentials in a first set and a second set of nerve fibers of the vagus nerve, and configuring the inhibiting current to inhibit the induced action potentials traveling in the second set of nerve fibers, the nerve fibers in the second set having generally larger diameters than the nerve fibers in the first set.

174. (Previously presented) A method according to claim 164,

wherein applying the current comprises applying a stimulating current and an inhibiting current, and

wherein configuring the current comprises configuring the stimulating current to induce action potentials in the vagus nerve, and configuring the inhibiting current to inhibit action potentials induced by the stimulating current and traveling in the vagus nerve in an afferent direction toward a brain of the subject.

175. (Currently amended) A method according to claim 164, wherein ~~configuring~~ modulating the current to cause the fluctuation in the atrial contractility comprises cycling between first and second stimulation periods, and:

during the first stimulation periods, configuring the current to cause a reduction in a force of contraction of atrial cells of the subject; and

during the second stimulation periods, configuring the current to cause an increase in the reduced force of contraction of the atrial cells.

176. (Previously presented) A method according to claim 175, wherein configuring the current comprises setting each of the first stimulation periods to have a duration of between about 100 milliseconds and about 1000 milliseconds.

177. (Previously presented) A method according to claim 175, wherein configuring the current comprises setting each of the second stimulation periods to have a duration of between about 200 milliseconds and about 15 seconds.

178. (Previously presented) A method according to claim 175, wherein configuring the current comprises configuring the current to have a first frequency during the first stimulation periods, and a

second frequency during the second stimulation periods, the first frequency greater than the second frequency.

179. (Previously presented) A method according to claim 175, wherein configuring the current comprises configuring the current to have a first amplitude during the first stimulation periods, and a second amplitude during the second stimulation periods, the first amplitude greater than the second amplitude.

180. (Previously presented) A method according to claim 175, wherein applying the current comprises:

applying the current during the first stimulation periods; and

withholding applying the current during the second stimulation periods.

181. (Previously presented) A method according to claim 175, wherein configuring the current comprises:

during the first stimulation periods, configuring the current so as to induce action potentials in the vagus nerve; and

during the second stimulation periods, configuring the current so as to block action potentials in the vagus nerve.

182. (Original) A method according to claim 175, wherein configuring the current comprises configuring the current so as to induce action potentials in the vagus nerve during the first and the second stimulation periods.

183. (Previously presented) A method according to claim 175,

wherein applying the current comprises applying the current in respective bursts in each of a plurality of cardiac cycles of the subject, and

wherein configuring the current comprises configuring each pulse of each of the bursts to have a pulse width of at least a first pulse width during the first stimulation periods, and to

have a pulse width of less than a second pulse width during the second stimulation periods, the first pulse width being greater than or equal to the second pulse width.

184. (Previously presented) A method according to claim 175,

wherein applying the current comprises applying the current in respective bursts in each of a plurality of cardiac cycles of the subject, and

wherein configuring the current comprises configuring each of the bursts to have a number of pulses of at least a first number of pulses during the first stimulation periods, and to have a number of pulses of less than a second number of pulses during the second stimulation periods, the first number of pulses being greater than or equal to the second number of pulses.

185. (Previously Presented) A method according to claim 175, wherein configuring the current comprises sensing at least one physiological variable of the subject, and synchronizing a commencement of at least one of the first and second stimulation periods with the sensed physiological variable.

186. (Previously presented) A method according to claim 185, wherein the sensed physiological variable includes a QRS-complex of the subject, and wherein configuring the current comprises initiating each of the first stimulations period within about 50 milliseconds after an occurrence of the QRS-complex.

187. (Previously presented) A method according to claim 185, wherein the sensed physiological variable includes an expiration by the subject, and wherein configuring the current comprises initiating each of the first stimulation periods within about 500 milliseconds after a beginning of the expiration.

188. (Previously presented) A method according to claim 185, wherein the sensed physiological variable includes diastole of the

subject, and wherein configuring the current comprises initiating each of the second stimulation periods substantially simultaneously with a portion of the diastole.

189-360. (Canceled)

361. (Previously presented) Apparatus according to claim 21, wherein the electrode device is configured to be coupled to the vagus nerve of the subject, the subject suffering from atrial fibrillation (AF).

362. (Previously presented) A method according to claim 164, wherein applying the current comprises identifying that the subject is suffering from atrial fibrillation (AF), and applying the current responsively to the identifying.

363. (Currently amended) Apparatus according to claim 21, wherein the control unit is configured to modulate the current to cause the fluctuation in the atrial contractility by cycling ~~cycle~~ between first and second stimulation periods, and to:

during the first stimulation periods, configure the current to cause a reduction in a force of contraction of atrial cells of the subject, and

during the second stimulation periods, configure the current to cause the atrial cells to contract with rebound strength.

364. (Currently amended) A method according to claim 164, wherein ~~configuring~~ modulating the current to cause the fluctuation in the atrial contractility comprises cycling between first and second stimulation periods, and:

during the first stimulation periods, configuring the current to cause a reduction in a force of contraction of atrial cells of the subject; and

during the second stimulation periods, configuring the current to cause the atrial cells to contract with rebound strength.